

BULLETIN
OF THE
Chicago Academy of Sciences

FALL ANNOUNCEMENTS 1910



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GENERAL STATEMENT

During the last two years the Academy has been carrying on several lines of educational work, in co-operation with the school teachers and directly with the children in the promotion of Nature Study and other scientific work. The Academy has been very much encouraged by the co-operation of the district superintendents, principals and teachers of the north side of the city, by the increased use which has been made of the museum of exhibits at the Academy building, by the demand for the loan collections, which have been in almost constant use in the schools, and by the attendance at the classes conducted in the Academy building for the teachers and those conducted for the young people who have come as delegates from their several schools.

It is the purpose of the Academy to promote these lines of co-operation with the schools just as far as it is practicable, and to introduce such new methods of co-operation as may be mutually congenial to those engaged in the work. Our aim is to assist the teachers in making their work more effective and to arouse in the children who come to the Academy, or those whom we may address in the schools, a fuller appreciation of the realm of nature. We hope to encourage in each one, perhaps very indirectly, a spirit of investigation which will promote mental growth and a fuller appreciation and enjoyment of life. The scientific method of work, whether it is applied to strictly scientific studies or to other lines of work, will strengthen the intellectual growth of the child and in the end the intellectual independence of the citizen. We will do what we can to give those with whom we come in contact the advantages which may come from scientific methods in work, and we look forward with pleasure to the continuance of the co-operation which we have enjoyed in the past.

NATURE STUDY COURSE FOR TEACHERS.

In response to the demands which have reached us directly and indirectly from many sources, we have arranged to have Dr. H. S. Pepoon, of the Lake View High School, give the following series of lessons to the teachers in the elementary schools. The lessons will be free of charge to the teachers. The attendance at these lessons must, we anticipate, be limited,

as announced for each lecture, to a particular group of teachers, or to those engaged in the work of a particular grade. The lessons will be given in the lecture hall in the Academy building, Lincoln Park, at 4:15 P. M. on the following afternoons:

Lesson I. Nature Study work for Grades 1 - 2,
Tuesday, Sept. 13.

General directions for year's work.

Materials needed. Plans of presentation. Special directions.

Lesson II. Nature Study work for grades 3 - 5,
Tuesday, Sept. 20.

Same general topics as for I, with special directions for these grades.

Lesson III. Grades 6 - 7 - 8, - - Tuesday, Sept. 27.
Same general topics as for I, with special directions for these grades.

Lesson IV. The year's work in Nature Study for
Grade 3, - - - Tuesday, Oct. 4.

Lesson V. The year's work in Nature Study for
Grade 4, - - - Tuesday, Oct. 11.

Lesson VI. The year's work in Nature Study for
Grade 5, - - - Tuesday, Oct. 18.

Lesson VII. The year's work in Nature Study for
Grade 6, - - - Tuesday, Oct. 25.

Lesson VIII. The year's work in Nature Study for
Grade 7, - - - Tuesday, Nov. 1.

Lesson IX. The year's work in Nature Study for
Grade 8, - - - Tuesday, Nov. 8.

TEACHERS' COLLEGE-CREDIT COURSE.

Arrangements have been made with the University of Chicago Extension Department to have a regular college course offered at the Academy during the fall months. The course chosen is from the Department of Geology. It is entitled "History of the Earth, Part I." Twelve lessons will be given, and those completing the course will receive credit for one minor. The tuition charge is \$6.50. The Chicago public school teachers who are not already matriculated at the University will be matriculated free of charge upon registering for this course. The usual matriculation fee is \$5.00. This course will be conducted by

Dr. Wallace W. Atwood, Associate Professor of General Geology. The meetings will be held in the Academy building at 4:15 P. M. on the following dates: October 6, 13, 20, 27; November 3, 10, 17, 24; December 1, 8, 15, 22. A library will be furnished for those taking this course.

YOUNG PEOPLE'S COURSE IN NATURE STUDY.

Dr. Herman S. Pepoon, of the Lake View High School, will continue the work with the young people which he has been doing at the Academy during the last year. A series of six lessons will be offered, beginning Saturday, September 24, and continuing on the successive Saturdays until the six lessons have been offered.

One delegate from each of the seventh and eighth grade rooms may attend the series of lessons conducted at 2 P. M. at the Academy building on the Saturdays as announced.

At 10 A. M. on Saturday, September 24, Dr. Pepoon will receive a delegate from each of the fifth and sixth grade rooms, and if a sufficient number attend, his course will be continued for these delegates.

Each delegate must be officially appointed by his or her room. The delegates' tickets may be obtained by application at the Academy at the first meeting in the course.

The following is a syllabus of the Young People's Course:

FALL COURSE IN NATURE WORK FOR YOUNG PEOPLE.

By Dr. Herman S. Pepoon.

SIX LESSONS.

September 24 to October 29, inclusive.

The continuation of the twelve lessons given in the early part of 1910.

Lesson XIII. The Flower Family of Autumn. Composites.

1. Review of pupils' knowledge of simple flowers.
2. Dissection and study of a wild sunflower, with sketches.
3. Explanation of the complex structure.
4. Examples of wild and cultivated forms.
5. What color-velox and form mean.
6. Why flowers are ranked high or low.
7. The terms "hardy," "perennial" and "annual."
8. Valuable products of the family.

Lesson XIV. The Outcasts and Lowly Among Plants. Fungi.

1. What fungi are, by means of examples.
2. Mushrooms and toadstools. Poisonous and edible.
3. Rusts, mildews and smuts.
4. Parasite and saprophyte.
5. Damage to plant growers, with remedies.
6. Bacteria, germs, microbes. Laws of prevention.
7. Clover and its root-boarders.
8. Uses of fungi.

Lesson XV. Why and When the Birds Leave.

1. Bird time-table for autumn.
2. What causes the bird to leave.
3. Birds in their migration flights.
4. Differences in plumage of spring and autumn.
5. Some bird myths of the autumn.
6. The last bird.
7. Fall and spring shooting of game birds.

Lesson XVI. Underground Stems and Roots. Laboratory work.

1. Distinction between stems and roots.
2. Special forms of underground stems, with purpose of each.
3. Food shortage in plants.
4. Advantages and disadvantages of the underground stems.
5. Commercial growth of roots.
6. Types of roots, with examples of study.
7. Purposes of roots.
8. Uses of roots to men.
9. Root grafting and similar methods.

Lesson XVII. Cultivated Vegetables and Flowers. Laboratory work.

1. The vegetables in a well-stocked garden. Catalogues.
2. Source of our vegetables.
3. How to make a vegetable.
4. Parts of plants valuable in vegetables. Value of each kind of food.
5. Commercial growing of roots.
6. The vegetable families.
7. The choice garden flowers.
8. Annual, biennial, perennial.
9. Use of hot-bed, cold-frame, green-house, window-box.
10. Enemies of vegetables and flowers.

Lesson XVIII. Autumn Colors. Preparation for Winter.
Plants at Rest.

Lantern lecture with colored slides.

1. Various trees, with summer and autumn leaves.
2. Maple, hickory, black-gum, sumac, oak, willow, sassafras.
3. Evergreens of the north and south.
4. Summer and winter of various trees.
5. Winter rosetrees, biennial forms, annual weeds.
6. Cacti, winter and summer.
7. Winter protection.
8. Miscellaneous.

CONFERENCE PERIOD ON NATURE STUDY.

Dr. Herman S. Pepoon will be at the Academy building from 3:30 to 5 P. M. on Wednesday afternoons, beginning September 14, for conference with teachers on their nature-study work. There is no charge made for this service. Dr. Pepoon and the officers of the Academy trust that the teachers will take advantage of this opportunity to receive individual help in connection with their nature-study work.

CLASS WORK AT THE ACADEMY.

The Academy cordially invites teachers to bring their classes to the Academy and offers to provide, whenever possible, and when it is desired by the teacher, someone to assist in conducting the lesson at the museum. In addition to the members of the museum staff, Dr. Pepoon will make a limited number of such appointments.

We trust that all classes visiting the museum will register at the office. Arrangements for special class meetings at the museum, should always be made by appointment. This may often be done conveniently by telephone, calling Lincoln 2410 and asking for the Academy office.

ILLUSTRATED LECTURES AT THE SCHOOLS.

The Academy will continue to offer a limited number of illustrated lectures on scientific topics, free of charge, in the public schools. These lectures must be arranged for by special appointment.

MUSEUM LOAN COLLECTIONS.

It is the policy of the Academy to promote in all ways possible the use of the Museum Collections in the public schools.

During the coming year the number of collections available will be greatly increased, and those wishing to make use of them may keep posted through correspondence with the Academy. The officers of the Academy are desirous of improving these collections in every way possible, and of adding such new collections as will be used. We hope to prepare additional reading matter to accompany the collections and, if possible, to add photographic illustrations to each collection.

Collections may be retained for one week from date of issue. Birds and other specimens of a fragile or delicate nature must not be handled by the pupils. Only one collection will be issued at one time, but this may be exchanged for another at the expiration of the allotted time. It is expected that the collections will be returned to the Academy in good condition. The following collections, several of which have been fully described in Volume III, Number 3, of the Bulletin, are now ready for use.*

BIRD SERIES.

- No. 1. Winter Residents.
- No. 2. Residents.
- No. 3. Early Spring Arrivals.
- No. 4. Birds of the Great Lakes.
- No. 5. Birds of the Air.
- No. 6. Summer Residents.
- No. 7. Birds of Swamps.
- No. 8. Birds of Shore or Lakes.
- No. 9. Birds of Prey.
- No. 10. Seed-eating Birds.
- No. 11. Swimming Birds.
- No. 12. Wading Birds.
- No. 13. Six Common Birds.
- No. 14. Grouse and Pigeon.
- No. 15. Six Migrant Warblers.
- No. 16. Six Common Woodpeckers.
- No. 17. Six Common Warblers.
- No. 18. Six Familiar Birds.

ZOOLOGICAL SERIES.

- No. 19. Three Common Fishes.
- No. 20. Six Common Mammals.

*It is to be noted that the numbers of the loan collections have been changed. The teachers are requested to indicate the collection desired under the new number.

- No. 21. Life History of a Butterfly.
- No. 22. How Insects Hide.
- No. 23. Grasshoppers and Dragon-flies.
- No. 24. Ants, Bees and Wasps.
- No. 25. Flies.
- No. 26. Bugs.
- No. 27. Beetles.
- No. 28. Lace-winged Insects.
- No. 29. Some Common Butterflies.
- No. 30. Some Common Moths.
- No. 31. Life History of a Beetle.
- No. 32. The Chambered Nautilus.
- No. 33. Snails of Field and Forest.
- No. 34. The Oyster and Its Relatives.
- No. 35. Beautiful Shells of the Tropics.
- No. 36. A Day With the Pond Snails.
- No. 37. Odd and Interesting Sea Snails.
- No. 38. Star-fishes and Sea Urchins.
- No. 39. Corals.
- No. 40. Sea Fans and Sea Plumes.

ECONOMIC SERIES.

- No. 41. The Pearl Button Industry.
- No. 42. The Ivory Button Industry.
- No. 43. Some Common Ores.
- No. 44. Artificial Abrasives.
- No. 45. The Iron and Steel Industry.
- No. 46. Aluminum Ores and Products.
- No. 47. Coal.
- No. 48. The Silk Industry.
- No. 49. The Cotton Industry.
- No. 50. The Wheat Industry.
- No. 51. The Wheat Industry. (Charts.)
- No. 52. Some Familiar Commercial Woods.

GEOLOGICAL SERIES.

- No. 53. Eight Common Rocks.

LANTERN SLIDES.

At the urgent request of many, the Academy has undertaken to prepare several sets of lantern slides illustrating natural history and other scientific work conducted in the schools. These sets may be borrowed by a teacher or a principal upon written application. A set of lantern slides may be retained for one

week. It is expected that special care will be taken of this material and that it will be returned to the Academy in good condition. The following sets are now ready:

NATURE STUDY.

<i>Subject.</i>	<i>Number of Slides.</i>
1. Resident Birds, - - - - -	13
2. Winter Birds, - - - - -	12
3. Migrant Birds, - - - - -	14
4. Summer Birds, - - - - -	36
5. Foreign Mammals, - - - - -	19
6. American Mammals, - - - - -	23
7. Fresh-water Pearl Button Industry, - - - - -	25
8. Pearls and Mother-of-pearl, - - - - -	21
9. Sponges, - - - - -	21
10. Conservation of Forests, - - - - -	12
11. Lower Animals, - - - - -	26
12. Fishes and Reptiles, - - - - -	15

PHYSIOGRAPHY.

13. Wave Work, - - - - -	14
14. River Work, - - - - -	22

PICTURE COLLECTIONS.

Many teachers have found pictures, especially stereoscopic views, of special value to them in their work, and in response to many suggestions and requests, the Academy has purchased a number of sets of stereoscopic views which illustrate topics in Nature Study and Physiography work. A set of views may be borrowed by a teacher or principal upon written application and retained for one week. The following sets of views will be ready for distribution early in September:

PHYSIOGRAPHY.

Four sets of twenty-five views each.

1. Weathering and Stream Erosion.
2. Glaciers.
3. Shore Lines and Harbors.
4. Mountains.

NATURE STUDY.

<i>Subject.</i>	<i>Number of Views.</i>
5. American and Foreign Mammals, - - - - -	30
6. American and Foreign Birds, - - - - -	25
7. Fruits of Tropical and Temperate Climes, - - - - -	30
8. Domestic Animals, - - - - -	15

ECONOMIC SUBJECTS.

9.	The Cotton Industry,	-	-	-	-	-	25
10.	Iron and Steel Industry,	-	-	-	-	-	35
11.	Wheat, Corn and Oats,	-	-	-	-	-	25
12.	Lumbering,	-	-	-	-	-	25
13.	Silk Industry,	-	-	-	-	-	19
14.	Copper Mining,	-	-	-	-	-	13

FRIDAY EVENING PUBLIC LECTURES.

Beginning in October, a regular series of lectures will be given on the evening of the third Friday of each month at 8 P. M. The fall series, which may be extended into the winter, will pertain to the scientific studies associated with the Chicago region. The program ready for announcement is as follows:

October 21—"The Geologic History of the Chicago Region." By Dr. Wallace W. Atwood, Secretary of the Academy.

November 18—"Wild Flowers of the Chicago Region." By Dr. Herman S. Pepoon, of the Lake View High School and Special Lecturer at the Chicago Academy of Sciences.

December 16—"The Birds of the Chicago Region." By Mr. Frank C. Baker, Curator of the Chicago Academy of Sciences.

If the series is continued through the winter, the lectures will be on some of the following topics: "The Fishes of the Chicago Region," "The Insects of the Chicago Region," "The Chicago Weather," "The Reptiles and Amphibians, Past and Present, of the Chicago Region."

Members of the Academy will receive special invitations to these lectures and will be provided with guests' tickets. A section in the lecture hall will be reserved until five minutes past eight for the members and their invited guests. The remainder of the hall will be open to the public, and at five minutes past eight all the vacant seats will be declared open to those wishing to hear the lecture.

SUMMER CAMP.

A great deal of interest has been shown among the members of the Academy and among those who are co-operating in the work of the Academy in the establishment of a summer camp. This plan, as it has been provisionally outlined, would involve the selection of some unfenced and little modified region, perhaps in northern Wisconsin or northern Michigan, where the Academy could establish nature-study headquarters for the months of

July and August. Tents will be used for shelter and the life conducted as in a real camp. Service will be provided for preparation of the meals and all work associated with that department, but each one will be expected to take care of his or her tent. The Academy will have some one of scientific attainments in charge of the camp, who will be conducting work of collecting or study and will render such assistance as he can to others. No distinct courses of instruction will be offered. The whole life should be such as to be profitable as well as recreative to those coming to live at the camp. The camp would not be conducted for financial profit, but those enjoying the privileges offered would share equally in meeting the expenses. It is anticipated that by such an arrangement the expenses would be reduced to at least six dollars a week.

As arrangements for such a camp must be made long in advance, and as certain boards in the Academy must approve the plans, it is important that we know at as early a date as is possible the probable number who will desire accommodations at the camp. The attached blank will be a convenient form on which to receive your application:

CHICAGO ACADEMY OF SCIENCES SUMMER CAMP, 1911.

I desire to make a preliminary application for membership in the Summer Camp for the month of.....
I understand that this application does not bind me to any financial obligation, but that more definite announcements will be made later when final application with financial obligation is made.

(Name)

(Address)

MEMBERSHIP.

Membership in the Academy is open to "any person residing in Chicago or vicinity who is in sympathy with the objects of the Academy." The Active Members constitute the governing body in the Academy and pay annual dues of Five Dollars each. Associate Members have all the privileges of Active Members except those of voting and holding office. Their dues are Three Dollars a year. A copy of each of the publications issued by the Academy is sent to all paid-up members. Special lecture tickets are also issued to members.

Application blanks may be secured from the Secretary, who will be pleased to confer with any who may become so interested in the work of the Academy that they would like to become more directly associated with it.

WALLACE W. ATWOOD,

Secretary of the Academy,

Lincoln Park, Chicago.

THE BED ROCK TOPOGRAPHY BENEATH CHICAGO.

For several years the Academy has been collecting data on the depth of the bed rock in the various portions of the city. It is proposed now to plot all the data that becomes available, upon a map of the city and neighboring districts, and later to prepare, if sufficient data is received, a contour map showing the topography of the underlying rock surface. Later a relief model of the underlying rock surface may be prepared. The city officials, Sanitary Board, the Chicago Telephone Company, several of the architects and contractors in the city have indicated their willingness to co-operate with us in this work by furnishing data. The Academy will appreciate any other assistance that may be offered in the gathering of such. It is desirable that in each case we know the elevation of the bed rock, surface above or below the Chicago datum plane. If the information is not in that form, we should be pleased to receive as full a statement as can be given.

This work should prove of scientific interest in reproducing a topography somewhat as it existed before the ice sheets invaded this region, and it cannot but prove to be of great practical value to those interested in the foundations for large buildings or in the problem of tunneling through different portions of the Chicago region.